BY ORDER OF THE COMMANDER 934TH AIRLIFT WING

934 AIRLIFT WING INSTRUCTION 48-201

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Aerospace Medicine

ALARA PROGRAM

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This instruction implements AFPD 40-2, Radioactive Materials, AFI 40-201, Managing Radioactive Materials in the US Air Force and AFMAN 48-125, Personnel Ionizing Radiation Dosimetry; and AFI 48-148, Ionizing Radiation Protection. It outlines procedures and responsibilities for duties involving the use of ionizing radiation sources or work in areas within the 934th Airlift Wing (AW) where exposure to ionizing radiation may occur. It applies to all units assigned to the 934th Airlift Wing that own or operate devices containing radioactive sources or machines that produce radiation. Refer recommended changes and questions about this publication to the Office of Primary Responsibility (OPR) using the AF Form 847, Recommendation for Change of Publication; route the form directly to the 934 MSG/ SGPB at Minneapolis St Paul ARS. Ensure that all records created as a result of processes prescribed in this publication are maintained in accordance with Air Force Manual (AFMAN) 33-363, *Management of Records*, and disposed of in accordance with Air Force Records Information Management System (AFRIMS) Records Disposition Schedule (RDS). The use of the name or mark of any specific manufacturer, commercial product, commodity, or service in this publication does not imply endorsement by the Air Force.

SUMMARY OF CHANGES

Radiation references were updated to the current AFI radiation standards, IRSO is the Installation Radiation Safety Officer, and the 934 AW storage areas for unrestricted radioactive material was added. Telephone numbers have been updated.

1. General. As Low As Reasonably Achievable (ALARA) is a program covering all Air Force operations involving the use of radioactive materials or radiation producing devices. The ALARA concept is defined as that set of management and administrative actions taken to reduce

personnel radiation doses to as low a level as possible consistent with mission requirements. See Attachment 1 for the Glossary of References and Supporting Information for this AWI.

2. Procedures. It is Air Force policy that all exposures to ionizing radiation be kept ALARA. There should be no exposure to ionizing radiation without an expected benefit and the dose received should be the lowest possible consistent with the state of technology, costs and operational requirement.

3. Responsibilities:

3.1. Installation/Unit Commanders:

3.1.1. Designates the Installation Bioenvironmental Engineer, or other individual with equivalent experience, as the Installation Radiation Safety Officer. See AFI 48-148 Attachment 3 for specific qualification requirements.

3.1.2. Refer to AFI 40-201 paragraphs 1.14 and 1.15 for other commander responsibilities. Also refer to AFI 48-148 paragraph 2.11.

3.2. The installation radiation safety officer (IRSO):

3.2.1. Develops a formal radiation protection program that includes specific plans and procedures for keeping radiation exposures ALARA.

3.2.2. Reviews all plans for modifications of facilities or design of new facilities that involve the use of radiation producing devices.

3.2.3. Conducts surveillance of all areas where radioactive materials or radiation producing devices are used or stored.

3.2.4. Conducts the personnel dosimetry program for personnel who are likely to exceed 10 percent of the occupational exposure guidelines stated in AFI 48-125, *The US Air Force Personnel Dosimetry Program.*

3.2.5. Conducts annual radiation safety training for all individuals working where ionizing radiation producing devices are used.

3.2.6. Refer to AFI 40-201 paragraph 2.16, AFMAN 48-125 paragraph 2.9 and AFI 48-148 paragaph 2.19 for more specific responsibilities.

3.3. The Unit Radiation Safety Officer (URSO):

3.3.1. Establishes guidelines and procedures for operations within the unit utilizing radiation-producing devices to ensure exposures remain ALARA.

3.3.2. Develops formal plans (i.e. operating instructions) detailing local operational procedures and actions taken in the event of radiation overexposures.

3.3.3. Keeps the installation RSO informed of modifications to the facility, changes or additions of equipment, and other events that may require additional surveillance.

3.3.4. Maintains radiation protection survey documentation locally.

3.3.5. Assists the installation RSO in periodic reviews of programs, investigation of exposures, and other radiation protection requirements.

3.4. Base contracting:

3.4.1. Ensures that non-Air Force organizations have written approval, from the Installation Commander, to bring radioactive materials on Air Force property. This approval must be requested from the organization, through the installation RSO at least 30 calendar days before bringing the material onto the installation. Reference AFI 40-201, *Managing Radioactive Materials in the USAF*, paragraph 2.20.

3.4.2. For contractors, these requirements must be included in the statement of work.

3.5. Radiation Workers/Individuals:

3.5.1. Properly follow any and all applicable rules and procedures for radiation protection and safety specified by organizational management.

3.5.2. Perform all job duties in a manner that maintains all radiation exposures ALARA.

3.5.3. Refer to AFI 40-201 paragraph 2.29, AFMAN 48-125 paragraph 2.13, and AFI 48-148 paragraph 2.23 for more specific worker responsibilities.

3.5.4. Attend Radiation Safety Training provided by the Installation IRSO, the URSO and/or the Non-Destructive Inspection (NDI) Lab shop supervisor, annually.

4. Procedures:

4.1. The 934 AW Commander will appoint a primary and alternate installation radiation safety officer.

4.2. Each unit (squadron) utilizing ionizing radiation will appoint a unit RSO. Within the 934 AW these areas include the non-destructive inspection (NDI) lab of the 934 Maintenance Group and the dental x-ray section of the 934 Aeromedical Staging Squadron. Each squadron commander shall designate a unit RSO and an Alternate in writing.

4.3. The installation and unit RSOs will conduct all duties outlined in the responsibilities stated above. Specifically, these duties include but are not limited to the following:

4.3.1. The installation RSO will perform annual surveys of NDI lab and dental x-ray. These surveys will include measurements of radiation outside the shielded facilities during simulated x-ray operations to evaluate the shielding factor of the facilities. For the NDI lab, the survey will also include an evaluation of operations performed at the unshielded alternate location (bldg 821). Surveys will include evaluations of controls, equipment, warning devices, procedures and written guidelines.

4.3.2. The unit RSO must ensure all protective measures are exercised during each x-ray operation. The unit RSO will conduct operations with proper regards to safety for all personnel in the workplace and personnel in the surrounding area. All operational procedures will be coordinated with the IRSO.

4.3.3. The installation RSO or an alternate will distribute and collect the thermo luminescent dosimeters (TLD badges) quarterly only for the NDI lab. The unit RSO will ensure all personnel wear dosimeters properly. The unit RSO will receive, interpret and document results of TLD monitoring. The Unit RSO will ensure all personnel are informed of these results. In the event of a potential overexposure the installation RSO will conduct an investigation with assistance from the unit RSO.

4.3.4. If females that work in any of the above listed areas should become pregnant, they should notify their supervisor, the unit RSO and the Installation RSO immediately, before returning to duties involving radiation. Their duties will be evaluated as part of the base fetal protection program. If not administratively removed from radiation tasks by their doctor or supervisor, they will also be enrolled on the monthly TLD program as specified in AFMAN 48-125. All information gathered or recorded concerning the pregnancy will be placed in the pregnant workers medical record.

5. 934 AW Storage Areas For Unrestricted Radioactive Material (RAM).

5.1. Building 744 - Emergency Management (934 CE/CEX): 2 - APD 2000, ADM-300 E Kit.

5.2. Building 709 – Security Forces Squadron (934 SFS): General Licensed RAM. SABER 2000.

5.3. Building 752 - BE/PHS Office stores check sources for the SAM-935, SAM 940, Victoreen 451, and one (1) ADM-300 E kit.

Todd J. McCubbin, Colonel, USAFR
Commander

Attachment 1

GLOSSARY OF REFERENCES AND SUPPORTING INFORMATION

References

AFI 40-201, *Managing Radioactive Materials in the USAF*, 16 March 2011

AFMAN 48-125, *Personnel Ionizing Radiation Dosimetry*, 4 October 2011

AFI 48-148, *Ionizing Radiation Protection*, 21 September 2011

AFPD 40-2, Radioactive Materials (Non-Nuclear Weapons) 15 March 2007

Adopted Forms

AF Form 847, Recommendation for Change of Publication

Abbreviations and Acronyms

ALARA—As Low as Reasonably Achievable

MAJCOM—Major Command

NDI—Non-Destructive Inspection

OPR—Office of Primary Responsibility

RDS—Record Disposition Schedule

RSO—Radiation Safety Officer

TLD—Thermo Luminescent Dosimeters